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(71)Applicant : FUJI XEROX CO LTD

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(72)Inventor : NASHIMOTO KEIICHI

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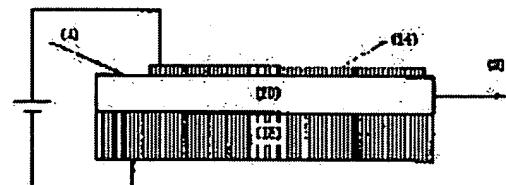
## (54) OPTICAL DEFLECTING ELEMENT

### (57)Abstract:

PURPOSE: To expand the polarization angle of a laser beam and to decrease driving voltage by forming an optical waveguide by a epitaxial ferrodielectric thin film formed on a conductive single crystal substrate, thereby this substrate acts as a lower electrode.

CONSTITUTION: The thin-film optical waveguide 10 consisting of epitaxial PLZT is grown on the (100) face of the conductive single crystal substrate 13 of SrTiO<sub>3</sub> doped with Nb of resistivity of about 5 to 500mΩ.cm and triangular electrode arrays 14 formed of transparent conductive oxide thin films of ITO are formed on the waveguide 10.

The laser beam 1 is confined into the PLZT thin film optical waveguide 10 when the laser beam of a laser diode of a wavelength of 780nm and output of 20mW is collimated and is introduced into the waveguide 10. The laser beam is deflected by the voltage impressed between the electrodes consisting of the triangular electrode arrays 14 consisting of the thin films of the ITO and the SrTiO<sub>3</sub> single crystal substrate 13 doped with Nb. The deflected laser beam is emitted as an exit laser beam 2 from the end face.



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